

PATENT ABSTRACTS OF JAPAN

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(54) SEALED COMPRESSOR

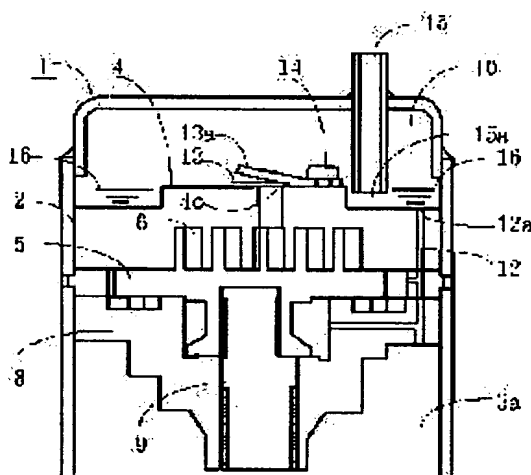
(57)Abstract:

PROBLEM TO BE SOLVED: To provide an efficient compressor capable of preventing the hindrance to the operation of a discharge valve by the oil and reducing the over compression by forming an oil reservoir of a discharge chamber at a part of a compressing part lower than the discharge port so as to prevent the sinking of the discharge port of the compressing part in the oil.

SOLUTION: A discharge chamber 10 provided between a top part and a compressing part 2 of a sealed compressor 1 and a motor chamber 3a for housing a motor and provided with an oil reservoir at a bottom part thereof are partitioned by the compressing part 2. A discharge port 4c is provided with a discharge valve 13 for preventing the reverse flow of the discharge gas, and a discharge pipe 15 opened at one end thereof so as to lead the compressed gas outside of the sealed compressor 1 is connected to the discharge chamber 10.

An oil return passage 12 for returning the lubricating oil collected in the discharge chamber 10 is provided

between the discharge chamber 10 and a sliding part of the compressing part 2 and the motor chamber 3a, and an opening part 15a of the discharge pipe 15 is provided at a part lower than the discharge port 4c. A discharge chamber 10 side opening part 12a of the oil return passage 12 is provided at a part lower than the opening part 15a of the discharge pipe 15, and an oil reservoir 16 is formed between the opening part 15a of the discharge pipe 15 and the opening part 12a of the oil return passage 12.



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CLAIMS

[Claim(s)]

[Claim 1] The regurgitation room where a compression zone is arranged in the upper part in a well-closed container, a motor is arranged in the lower part, it is prepared between this well-closed container crowning and said compression zone, and compressed gas is breathed out from the delivery of this compression zone central upper part, While holding said motor and dividing the motor room which equipped the pars basilaris ossis occipitalis with the sump by said compression zone The discharge valve which prevents the back run of regurgitation gas is arranged in said delivery, and the discharge tube which carries out opening of the end to said regurgitation room, and derives said compressed gas to said well-closed container exterior is connected. Between the sliding section of said regurgitation room and said compression zone, and said motor room While carrying out oil tempering, and a fuel level's forming the low sump section in said regurgitation chamber bottom surface from the delivery of said compression zone in the hermetic type compressor which returns the lubricating oil which piled up in this regurgitation room and which comes to have a path and making this sump section face opening of said discharge tube The hermetic type compressor which prepares caudad, carries out oil tempering and is characterized by said thing [coming to prepare said regurgitation room side opening of a path in the base of said downward sump section from opening of said discharge tube] from said delivery.

[Claim 2] The hermetic type compressor according to claim 1 characterized by forming said compression zone upper part in convex centering on said delivery, and becoming considering this compression zone up periphery as the sump section.

[Claim 3] The hermetic type compressor according to claim 1 which carries out oil tempering and is characterized by said thing [forming in a concave near the path opening and becoming considering this crevice as the sump section] of said compression zone upper part.

[Claim 4] The hermetic type compressor according to claim 1 characterized by coming to form opening of said discharge tube in a slanting configuration.

[Claim 5] The hermetic type compressor according to claim 1 which carries out oil tempering and is characterized by said thing [coming to prepare a strainer in opening of a path].

[Claim 6] The hermetic type compressor according to claim 1 characterized by coming to prepare an oil-separation plate in said discharge valve upper part of said regurgitation interior of a room.

[Claim 7] The hermetic type compressor according to claim 6 which makes it ** to come to form said oil-separation plate in the shape of [which made the sump section of said compression zone up periphery face the periphery section] an umbrella to the description.

[Claim 8] The hermetic type compressor according to claim 1 characterized by becoming considering said compressor as a scrolling compressor.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a hermetic type compressor, and does not make ***** the delivery of the compression zone arranged in the well-closed container upper part in detail, but relates to the sump structure of a regurgitation room where fault compression can be reduced.

[0002]

[Description of the Prior Art] The conventional hermetic type compressor is explained using drawing 6 which is the sectional view. The fixed scrolling 4 which have arranged the compression zone 2 in the upper part in a well-closed container 1, have arranged the motor 3 in the lower part, and the inner surface of end plate 4a was made to set up ****-like lap 4b for this compression zone 2 in drawing, and was equipped with delivery 4c near the center section, The Oldham ring 7 which similarly engages mutually the turning scrolling 5 which made the inner surface of end plate 5a set up ****-like lap 5b, forms compression space 6, prevents rotation of this turning scrolling 5, and carries out a revolution circular movement, The shaft 9 equipped with fixed pivot 9a which transmits the turning effort of said motor 3 and drives said turning scrolling 5, The mainframe 8 which has bearing 8a which supports the end of this shaft 9, Consisting of 5d of the boss sections which equipped the tooth back of end plate 5a of said turning scrolling 5 with fixed pivot carrier 5c, said fixed pivot 9a is formed at the head of said shaft 9 at one, and has composition inserted in fixed pivot carrier of 5d of said boss sections 5c.

[0003] Between the crowning of said well-closed container 1, and said compression zone 2, while the regurgitation room 10 where compressed gas is breathed out from said delivery 4c is formed and said motor 3 is held, it has motor room 3a which equipped the pars basilaris ossis occipitalis with the sump 11, and this motor room 3a and said regurgitation room 10 are divided by said compression zone 2. discharge valve 13' which prevents the back run of regurgitation gas in said delivery 4c upper part -- arranging -- this discharge valve 13' after valve-guard 13a' for regulating the maximum opening of discharge valve 13' has piled up, it arranges in the upper part -- having -- these -- one screw thread 14 -- fixed end plate 4a -- mounting *****.

[0004] Oil return path 12' which returns the lubricating oil which connected the discharge tube 15 which carries out opening of the end to said regurgitation room 10, and derives said compressed gas to the exterior of said well-closed container 1, and piled up in this regurgitation room 10 between the sliding section of said regurgitation room 10 and said compression zone 2,

and said motor room 3a It has composition which it had. The refrigerant from a refrigerating cycle is compressed carrying out sequential migration from the periphery section of compression space 6 to a core, and serves as high voltage compressed gas, this compressed gas goes via a discharge opening, and it is discharge valve 13' by the pressure from delivery 4c. It opens, is breathed out by the regurgitation room 10 and emitted to the exterior of a well-closed container 1 from a discharge tube 15.

[0005] Moreover, the lubricating oil in regurgitation gas collides, and is divided into the wall surface of said well-closed container 1, and separation ***** is sump section 16' of the lower part of the regurgitation room 10, i.e., said compression zone 2 upper part. It stores oil. the case where return the oil which ****(ed) to sump section 16' of the regurgitation room 10 to said motor room 3a, or compression zone 2 grade is lubricated -- said oil tempering for lubrication -- carrying out -- path 12' from -- in order to lose the degradation by compressed gas returning, as shown in drawing 6 , the oil needed to be accumulated to some extent in the regurgitation room 10.

[0006] However, in the above-mentioned configuration, delivery 4c of a compression zone 2 is soaked into an oil, and an oil is discharge valve 13'. Since a motion is barred, fault compression occurs, useless power is needed and there is a problem of causing decline in efficiency of energy use.

[0007]

[Problem(s) to be Solved by the Invention] By having been made in view of the above-mentioned trouble, and forming the sump section of a regurgitation room below the delivery of a compression zone, this invention cannot make the delivery of a compression zone ***** , but can prevent the hindrance of actuation of the discharge valve by the oil, can reduce fault compression, and aims at offering a hermetic type compressor with sufficient efficiency of energy use.

[0008]

[Means for Solving the Problem] The regurgitation room where it was made in order that this invention might solve the above-mentioned technical problem, and a compression zone is arranged in the upper part in a well-closed container, a motor is arranged in the lower part, it is prepared between this well-closed container crowning and said compression zone, and compressed gas is breathed out from the delivery of this compression zone central upper part, While holding said motor and dividing the motor room which equipped the pars basilaris ossis occipitalis with the sump by said compression zone The discharge tube which arranges in said delivery the discharge valve which prevents the back run of regurgitation gas, carries out opening of the end to said regurgitation room, and derives said compressed gas to said well-closed container exterior is connected. In the hermetic type compressor which returns the lubricating oil which piled up in this regurgitation room between the sliding section of said regurgitation room and said compression zone, and said motor room and which carries out oil tempering and comes to have a path While a fuel level forms the low sump section in said regurgitation chamber bottom surface from the delivery of said compression zone and making this sump section face opening of said discharge tube It prepares caudad and has said composition of having carried out oil tempering and having prepared said regurgitation room side opening of a path in the base of said downward sump section from opening of said discharge tube from said delivery.

[0009] Moreover, said compression zone upper part is formed in convex centering on said delivery, and it has composition which made this compression zone up periphery the sump section.

[0010] Moreover, it has said composition of said compression zone upper part which carried out oil tempering, formed in the concave near the path opening, and made this crevice the sump section.

[0011] Moreover, it has composition which formed opening of said discharge tube in the slanting configuration.

[0012] Moreover, it has said composition of having carried out oil tempering and having formed the strainer in opening of a path.

[0013] Moreover, it has the composition of having formed the oil-separation plate in said discharge valve upper part of said regurgitation interior of a room.

[0014] Moreover, it has composition which formed said oil-separation plate in the shape of [which made the sump section of said compression zone up periphery face the periphery section] an umbrella.

[0015] Moreover, they are a scrolling compressor and ***** about said compressor.

[0016]

[Embodiment of the Invention] The gestalt of operation of this invention is explained to a detail with reference to an accompanying drawing. The sectional view of a hermetic type compressor in which drawing 1 shows one example of this invention, and drawing 2 are important section enlarged drawings. The fixed scrolling 4 which have arranged the compression zone 2 in the upper part in a well-closed container 1, have arranged the motor 3 in the lower part, and the inner surface of end plate 4a was made to set up ****-like lap 4b for this compression zone 2 in drawing, and was equipped with delivery 4c near the center section, The Oldham ring 7 which similarly engages mutually the turning scrolling 5 which made the inner surface of end plate 5a set up ****-like lap 5b, forms compression space 6, prevents rotation of this turning scrolling 5, and carries out a revolution circular movement, The shaft 9 equipped with fixed pivot 9a which transmits the turning effort of said motor 3 and drives said turning scrolling 5, The mainframe 8 which has bearing 8a which supports the end of this shaft 9, Consisting of 5d of the boss sections which equipped the tooth back of end plate 5a of said turning scrolling 5 with fixed pivot carrier 5c, said fixed pivot 9a is formed at the head of said shaft 9 at one, and has composition inserted in fixed pivot carrier of 5d of said boss sections 5c.

[0017] Between the crowning of said well-closed container 1, and said compression zone 2, while the regurgitation room 10 where compressed gas is breathed out from said delivery 4c is formed and said motor 3 is held, it has motor room 3a which equipped the pars basilaris ossis occipitalis with the sump 11, and this motor room 3a and said regurgitation room 10 are divided by said compression zone 2. valve-guard 13a for arranging in said delivery 4c upper part the discharge valve 13 which prevents the back run of regurgitation gas, and regulating the maximum opening of a discharge valve 13 in the said discharge valve 13 upper part it arranges in the condition of having piled up -- having -- these -- one screw thread 14 -- fixed end plate 4a -- mounting *****.

[0018] The discharge tube 15 which carries out opening of the end to said regurgitation room 10, and derives said compressed gas to the exterior of said well-closed container 1 is connected, and it has the composition which carried out oil tempering and was equipped with the path 12 of returning the lubricating oil which piled up in this regurgitation room 10 between the sliding section of said regurgitation room 10 and said compression zone 2, and said motor room 3a. The refrigerant from a refrigerating cycle is compressed carrying out sequential migration from the periphery section of compression space 6 to a core, and serves as high voltage compressed gas, and this compressed gas opens a discharge valve 13 with a pressure from delivery 4c via a discharge opening, is breathed out by the regurgitation room 10, and is emitted to the exterior of a well-closed container 1 from a discharge tube 15.

[0019] Said compression zone 2 upper part is formed in convex focusing on said delivery 4c, the up periphery of this compression zone 2 is made into the concave sump section 16, and it is opening 15a of said discharge tube 15. While making this sump section 16 attend and preparing caudad from said delivery 4c Said regurgitation room 10 side opening of said oil return path 12 12a Opening 15a of said discharge tube 15 It has composition prepared in the base of said downward sump section 16.

[0020] In the above-mentioned configuration, the concave sump section 16 is formed in said compression zone 2 up periphery of said regurgitation room 10 bases, and it is opening 15a of said discharge tube 15. While making this sump section 16 attend and preparing caudad from said delivery 4c Said regurgitation room 10 side opening of said oil return path 12 12a Opening 15a of said discharge tube 15 By considering as the configuration prepared in the base of said downward sump section 16 Delivery 4c of a compression zone 2 cannot be made into *****, but the hindrance of actuation of the discharge valve 13 by the oil can be prevented, fault

compression can be reduced, and it becomes an efficient hermetic type compressor.

[0021] Drawing 3 is what showed the second example of this invention, and is opening 12a of said oil return path 12 of said compression zone 2 upper part. The cut manday of the sump section 16 is reduced by forming near in a concave and considering as the configuration which made this crevice the sump section 16.

[0022] Compressed gas is made easy to draw from a discharge tube 15 to the exterior of said well-closed container 1 by considering as the configuration which drawing 4 is what showed the third example of this invention, and formed opening 15a' ** of said discharge tube 15 in the slanting configuration. Moreover, by considering as said configuration which carried out oil tempering and formed the strainer 17 in opening 12a of a path 12, the foreign matter in an oil is removed and mixing of the foreign matter to the sliding section of said compression zone 2 is prevented.

[0023] Drawing 5 is what showed the fourth example of this invention, and is said discharge valve 13 in said regurgitation room 10, and valve guard 13a. The oil-separation plate 18 is formed in the upper part. the shape of an umbrella which made the sump section 16 of said compression zone 2 up periphery face the periphery section for this oil-separation plate 18 -- forming -- this -- a bolt 19 -- fixed end plate 4a -- a mounting beam configuration -- ** -- by carrying out It is made as [store / ***** which could separate the lubricating oil in regurgitation gas effectively, and was separated / in the sump section 16 / directly].

[0024] As explained above, it is opening 15a of said discharge tube 15. While preparing caudad from said delivery 4c Said regurgitation room 10 side opening of said oil return path 12 12a Opening 12a of said discharge tube 15 It prepares caudad. Opening 15a of this discharge tube 15 Opening 12a of said oil return path 12 By considering as the configuration in which the sump section 16 was formed in between Delivery 4c of a compression zone 2 cannot be made into *****, but the hindrance of actuation of the discharge valve 13 by the oil can be prevented, fault compression can be reduced, and it becomes a hermetic type compressor with sufficient efficiency of energy use.

[0025]

[Effect of the Invention] As mentioned above, in this invention, while preparing opening of a discharge tube caudad from a delivery By considering as the configuration which carried out oil tempering, prepared regurgitation room side opening of a path caudad from opening of a discharge tube, carried out oil tempering to opening of this discharge tube, and formed the sump section between openings of a path The delivery of a compression zone cannot be made into *****, but the hindrance of actuation of the discharge valve by the oil can be prevented, fault compression can be reduced, and it becomes a hermetic type compressor with sufficient efficiency of energy use.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section of a hermetic type compressor showing the example of this invention.

[Drawing 2] It is the important section expanded sectional view showing one example of this invention.

[Drawing 3] It is the important section enlarged drawing showing the second example by this invention.

[Drawing 4] It is the important section amplification plan showing the third example by this invention.

[Drawing 5] It is the important section amplification plan showing the fourth example by this invention.

[Drawing 6] It is drawing of longitudinal section of the hermetic type compressor by the conventional example.

[Description of Notations]

- 1 Well-closed Container
- 2 Compression Zone
- 3 Motor
- 3a Motor room
- 4 Fixed Scrolling
- 4a Fixed end plate
- 4b Fixed scrolling lap
- 4c Delivery
- 5 Turning Scrolling
- 5a Turning end plate
- 5b Turning scrolling lap
- 5c Fixed pivot carrier
- 5d Boss section
- 6 Compression Space
- 7 Oldham Ring
- 8 Mainframe
- 8a Bearing
- 9 Shaft
- 9a Fixed pivot
- 10 Regurgitation Room
- 11 Sump
- 12 Carry Out Oil Tempering and it is Tubing.
- 13 Discharge Valve
- 13a Valve guard
- 14 Screw Thread
- 15 Discharge Tube
- 16 Sump Section
- 17 Strainer
- 18 Oil-Separation Plate
- 19 Bolt

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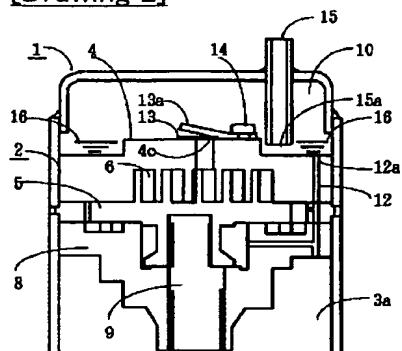
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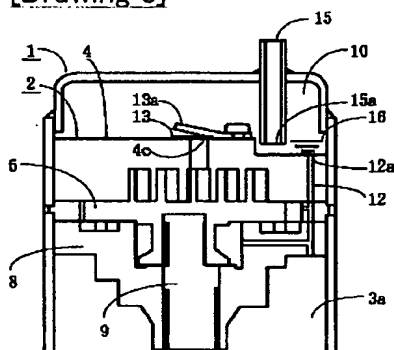
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DRAWINGS

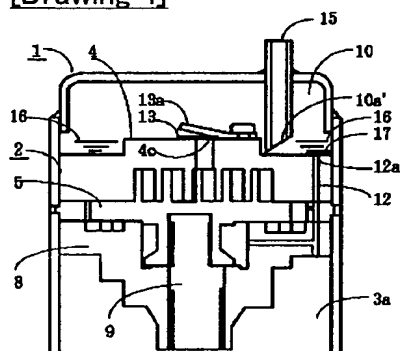
[Drawing 2]



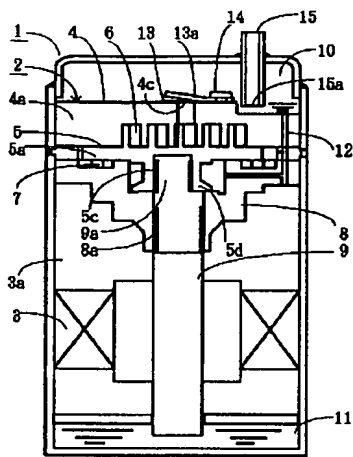
[Drawing 3]



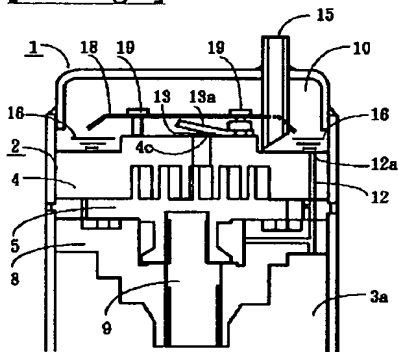
[Drawing 4]



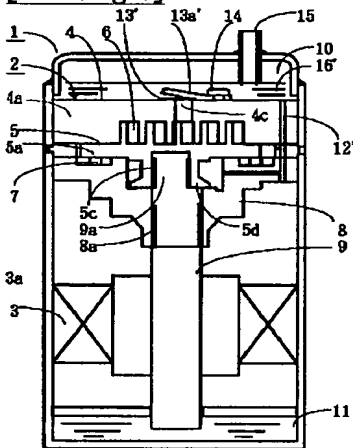
[Drawing 1]



[Drawing 5]



[Drawing 6]



[Translation done.]

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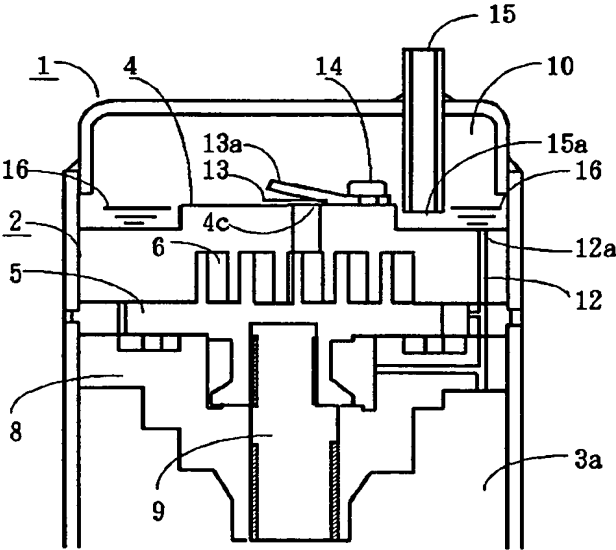
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(54) 【発明の名称】 密閉型圧縮機

(57) 【要約】

【課題】 圧縮部の吐出口より下部に吐出室の油溜部を形成することにより、圧縮部の吐出口を油漬けにせず、油による吐出弁の動作の妨げを防止し、過圧縮を低減でき効率の良い密閉型圧縮機を提供する。

【解決手段】 密閉容器 1 頂部と圧縮部 2 の間に設けられ、圧縮部 2 の吐出口4cから圧縮ガスが吐出される吐出室10と、電動機を収容し底部に油溜を備えた電動機室3aとを圧縮部 2 により仕切り、吐出口4cに吐出ガスの逆流を防止する吐出弁13を設け、吐出室10に一端を開口し圧縮ガスを密閉容器 1 外部へ導出する吐出管15を接続し、吐出室10と圧縮部 2 の摺動部および電動機室3aとの間に、吐出室10に滞留した潤滑油を戻す油戻し通路12を備えてなり、吐出管15の開口部15a を吐出口4cより下方に設け、油戻し通路12の吐出室10側開口部12a を吐出管15の開口部15a より下方に設け、吐出管15の開口部15a と油戻し通路12の開口部12a との間に油溜部16を形成した。



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【特許請求の範囲】

【請求項1】 密閉容器内の上部に圧縮部を、下部に電動機を配置し、同密閉容器頂部と前記圧縮部の間に設けられ、同圧縮部中央上部の吐出口から圧縮ガスが吐出される吐出室と、前記電動機を收容するとともに底部に油溜を備えた電動機室とを前記圧縮部により仕切る一方、前記吐出口に吐出ガスの逆流を防止する吐出弁を配設し、前記吐出室に一端を開口し前記圧縮ガスを前記密閉容器外部へ導出する吐出管を接続し、前記吐出室と前記圧縮部の摺動部および前記電動機室との間に、同吐出室に滞留した潤滑油を戻す油戻し通路を備えてなる密閉型圧縮機において、

前記吐出室底面に前記圧縮部の吐出口より油面が低い油溜部を形成し、前記吐出管の開口部を、同油溜部に臨ませるとともに、前記吐出口より下方に設け、前記油戻し通路の前記吐出室側開口部を、前記吐出管の開口部より下方の前記油溜部の底面に設けてなることを特徴とする密閉型圧縮機。

【請求項2】 前記圧縮部上部を前記吐出口を中心に凸状に形成し、同圧縮部上部外周を油溜部としてなることを特徴とする請求項1記載の密閉型圧縮機。

【請求項3】 前記圧縮部上部の前記油戻し通路開口部近傍を凹状に形成し、同凹部を油溜部としてなることを特徴とする請求項1記載の密閉型圧縮機。

【請求項4】 前記吐出管の開口部を斜め形状に形成してなることを特徴とする請求項1記載の密閉型圧縮機。

【請求項5】 前記油戻し通路の開口部にストレーナを設けてなることを特徴とする請求項1記載の密閉型圧縮機。

【請求項6】 前記吐出室内の前記吐出弁上部に油分離板を設けてなることを特徴とする請求項1記載の密閉型圧縮機。

【請求項7】 前記油分離板を、その外周部を前記圧縮部上部外周の油溜部に臨ませた傘状に形成してなることを特徴とする請求項6記載の密閉型圧縮機。

【請求項8】 前記圧縮機をスクロール圧縮機としてなることを特徴とする請求項1記載の密閉型圧縮機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、密閉型圧縮機に係り、詳しくは密閉容器上部に配設された圧縮部の吐出口を油漬けにせず、過圧縮を低減できる吐出室の油溜め構造に関する。

【0002】

【従来の技術】従来の密閉型圧縮機について、その断面図である図6を用いて説明する。図において、密閉容器1内の上部に圧縮部2、下部に電動機3を配置し、同圧縮部2を、鏡板4aの内面に渦捲状のラップ4bを立設させ、中央部付近に吐出口4cを備えた固定スクロール4と、同じく、鏡板5aの内面に渦捲状のラップ5bを立設さ

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せた旋回スクロール5とを互いに噛み合わせ圧縮室6を形成し、同旋回スクロール5の自転を防止して公転旋回運動させるオルダムリング7と、前記電動機3の回転力を伝達し前記旋回スクロール5を駆動する旋回軸9aを備えたシャフト9と、同シャフト9の一端を支承する軸受8aを有するメインフレーム8と、前記旋回スクロール5の鏡板5aの背面に旋回軸受5cを備えたボス部5dとからなり、前記旋回軸9aは前記シャフト9の先端に一体に形成され、前記ボス部5dの旋回軸受5cに嵌入される構成となっている。

【0003】前記密閉容器1の頂部と前記圧縮部2の間に、前記吐出口4cから圧縮ガスが吐出される吐出室10が設けられるとともに、前記電動機3を收容する一方、底部に油溜11を備えた電動機室3aを備え、同電動機室3aと前記吐出室10が前記圧縮部2により仕切られている。前記吐出口4c上部に吐出ガスの逆流を防止する吐出弁13'を配設し、同吐出弁13'上部に、吐出弁13'の最大開度を規制するための弁押さえ13a'が重ねられた状態で配設され、これらは1つのねじ14で固定鏡板4aに取付られて

【0004】前記吐出室10に一端を開口し前記圧縮ガスを前記密閉容器1の外部へ導出する吐出管15を接続し、前記吐出室10と前記圧縮部2の摺動部および前記電動機室3aとの間に、同吐出室10に滞留した潤滑油を戻す油戻し通路12'を備えた構成となっている。冷凍サイクルからの冷媒は圧縮室6の外周部から中心部へ順次移動しながら圧縮され高圧圧縮ガスとなり、同圧縮ガスは吐出孔を経由して吐出口4cから圧力により吐出弁13'を開弁して吐出室10に吐出され、吐出管15から密閉容器1の外部に放出される。

【0005】また、吐出ガス中の潤滑油は前記密閉容器1の壁面に衝突し分離され、分離した油は吐出室10の下部、即ち前記圧縮部2上部の油溜部16'に貯油される。吐出室10の油溜部16'に滞油した油を前記電動機室3aへ戻したり、圧縮部2等に注油する場合、注油のための前記油戻し通路12'から圧縮ガスが戻ることによる効率低下を無くすため、図6に示すように吐出室10にある程度油をためておく必要があった。

【0006】しかしながら、上記構成においては、圧縮部2の吐出口4cが油中に浸かってしまい、また、油が吐出弁13'の動きをさまたげるので、過圧縮が発生し無駄な動力を必要とし、エネルギー消費効率の低下を招くという問題がある。

【0007】

【発明が解決しようとする課題】本発明は上記問題点を鑑みなされたもので、圧縮部の吐出口より下部に吐出室の油溜部を形成することにより、圧縮部の吐出口を油漬けにせず、油による吐出弁の動作の妨げを防止し、過圧縮を低減することができ、エネルギー消費効率の良い密閉型圧縮機を提供することを目的としている。

【0008】

【課題を解決するための手段】本発明は上記の課題を解決するためなされたもので、密閉容器内の上部に圧縮部を、下部に電動機を配置し、同密閉容器頂部と前記圧縮部の間に設けられ、同圧縮部中央上部の吐出口から圧縮ガスが吐出される吐出室と、前記電動機を収容するとともに底部に油溜を備えた電動機室とを前記圧縮部により仕切る一方、前記吐出口に吐出ガスの逆流を防止する吐出弁を配設し、前記吐出室に一端を開口し前記圧縮ガスを前記密閉容器外部へ導出する吐出管を接続し、前記吐出室と前記圧縮部の摺動部および前記電動機室間に、同吐出室に滞留した潤滑油を戻す油戻し通路を備えてなる密閉型圧縮機において、前記吐出室底面に前記圧縮部の吐出口より油面が低い油溜部を形成し、前記吐出管の開口部を、同油溜部に臨ませるとともに、前記吐出口より下方に設け、前記油戻し通路の前記吐出室側開口部を、前記吐出管の開口部より下方の前記油溜部の底面に設けた構成となっている。

【0009】また、前記圧縮部上部を前記吐出口を中心に凸状に形成し、同圧縮部上部外周を油溜部とした構成となっている。

【0010】また、前記圧縮部上部の前記油戻し通路開口部近傍を凹状に形成し、同凹部を油溜部とした構成となっている。

【0011】また、前記吐出管の開口部を斜め形状に形成した構成となっている。

【0012】また、前記油戻し通路の開口部にストレーナを設けた構成となっている。

【0013】また、前記吐出室内の前記吐出弁上部に油分離板を設けた構成となっている。

【0014】また、前記油分離板を、その外周部を前記圧縮部上部外周の油溜部に臨ませた傘状に形成した構成となっている。

【0015】また、前記圧縮機をスクロール圧縮機とした構成となっている。

【0016】

【発明の実施の形態】本発明の実施の形態について添付図面を参照して詳細に説明する。図1は、本発明の一実施例を示す密閉型圧縮機の断面図、図2は要部拡大図である。図において、密閉容器1内の上部に圧縮部2、下部に電動機3を配置し、同圧縮部2を、鏡板4aの内面に渦捲状のラップ4bを立設させ、中央部付近に吐出口4cを備えた固定スクロール4と、同じく、鏡板5aの内面に渦捲状のラップ5bを立設させた旋回スクロール5とを互いに噛み合わせ圧縮室6を形成し、同旋回スクロール5の自転を防止して公転旋回運動させるオルダムリング7と、前記電動機3の回転力を伝達し前記旋回スクロール5を駆動する旋回軸9aを備えたシャフト9と、同シャフト9の一端を支承する軸受8aを有するメインフレーム8と、前記旋回スクロール5の鏡板5aの背面に旋回軸受5c

を備えたボス部5dとからなり、前記旋回軸9aは前記シャフト9の先端に一体に形成され、前記ボス部5dの旋回軸受5cに嵌入される構成となっている。

【0017】前記密閉容器1の頂部と前記圧縮部2の間に、前記吐出口4cから圧縮ガスが吐出される吐出室10が設けられるとともに、前記電動機3を収容する一方、底部に油溜11を備えた電動機室3aを備え、同電動機室3aと前記吐出室10が前記圧縮部2により仕切られている。前記吐出口4c上部に吐出ガスの逆流を防止する吐出弁13を配設し、同吐出弁13上部に、吐出弁13の最大開度を規制するための弁押さえ13aが重ねられた状態で配設され、これらは1つのねじ14で固定鏡板4aに取付られている。

【0018】前記吐出室10に一端を開口し前記圧縮ガスを前記密閉容器1の外部へ導出する吐出管15を接続し、前記吐出室10と前記圧縮部2の摺動部および前記電動機室3aとの間に、同吐出室10に滞留した潤滑油を戻す油戻し通路12を備えた構成となっている。冷凍サイクルからの冷媒は圧縮室6の外周部から中心部へ順次移動しながら圧縮され高圧圧縮ガスとなり、同圧縮ガスは吐出孔を経由して吐出口4cから圧力により吐出弁13を開弁して吐出室10に吐出され、吐出管15から密閉容器1の外部に放出される。

【0019】前記圧縮部2上部を前記吐出口4cを中心に凸状に形成し、同圧縮部2の上部外周を凹状の油溜部16とし、前記吐出管15の開口部15aを、同油溜部16に臨ませ前記吐出口4cより下方に設けるとともに、前記油戻し通路12の前記吐出室10側開口部12aを、前記吐出管15の開口部15aより下方の前記油溜部16の底面に設けた構成となっている。

【0020】上記構成において、前記吐出室10底面の前記圧縮部2上部外周に凹状の油溜部16を設け、前記吐出管15の開口部15aを、同油溜部16に臨ませ前記吐出口4cより下方に設けるとともに、前記油戻し通路12の前記吐出室10側開口部12aを、前記吐出管15の開口部15aより下方の前記油溜部16の底面に設けた構成とすることにより、圧縮部2の吐出口4cを油漬けにせず、油による吐出弁13の動作の妨げを防止し、過圧縮を低減することができ、効率の良い密閉型圧縮機となる。

【0021】図3は本発明の第二の実施例を示したもので、前記圧縮部2上部の前記油戻し通路12の開口部12a近傍を凹状に形成し、同凹部を油溜部16とした構成とすることにより、油溜部16の切削工数を低減したものである。

【0022】図4は本発明の第三の実施例を示したもので、前記吐出管15の開口部15a'を斜め形状に形成した構成とすることにより、吐出管15から圧縮ガスを前記密閉容器1の外部へ導出し易くしたものである。また、前記油戻し通路12の開口部12aにストレーナ17を設けた構成とすることにより、油中の異物を除去し、前記圧縮部2の摺動部への異物の混入を防止するようにしたもので

ある。
【0023】図5は本発明の第四の実施例を示したもので、前記吐出室10内の前記吐出弁13と弁押え13aの上部に油分離板18を設け、同油分離板18を、その外周部を前記圧縮部2上部外周の油溜部16に臨ませた傘状に形成し、これをボルト19で固定鏡板4aに取付けた構成とすることにより、吐出ガス中の潤滑油を効果的に分離することができ、かつ分離した潤滑油を油溜部16に直接貯油するようになされている。

【0024】以上に説明したように、前記吐出管15の開口部15aを前記吐出口4cより下方に設けるとともに、前記油戻し通路12の前記吐出室10側開口部12aを前記吐出管15の開口部12aより下方に設け、同吐出管15の開口部15aと前記油戻し通路12の開口部12aとの間に油溜部16を形成した構成とすることにより、圧縮部2の吐出口4cを油漬けにせず、油による吐出弁13の動作の妨げを防止し、過圧縮を低減することができ、エネルギー消費効率の良い密閉型圧縮機となる。

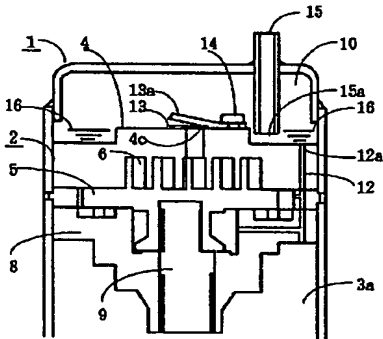
【0025】
【発明の効果】以上のように本発明においては、吐出管の開口部を吐出口より下方に設けるとともに、油戻し通路の吐出室側開口部を吐出管の開口部より下方に設け、同吐出管の開口部と油戻し通路の開口部との間に油溜部を形成した構成とすることにより、圧縮部の吐出口を油漬けにせず、油による吐出弁の動作の妨げを防止し、過圧縮を低減することができ、エネルギー消費効率の良い密閉型圧縮機となる。

【図面の簡単な説明】
【図1】本発明の実施例を示す密閉型圧縮機の縦断面図である。
【図2】本発明の一実施例を示す要部拡大断面図である。
【図3】本発明による第二の実施例を示す要部拡大図である。
【図4】本発明による第三の実施例を示す要部拡大上面

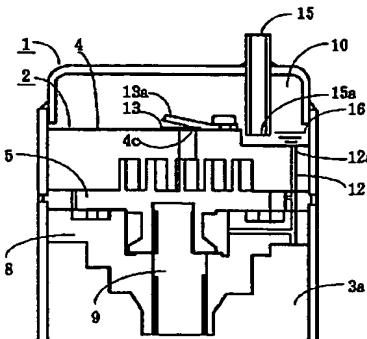
図である。
【図5】本発明による第四の実施例を示す要部拡大上面図である。
【図6】従来例による密閉型圧縮機の縦断面図である。
【符号の説明】

- 1 密閉容器
- 2 圧縮部
- 3 電動機
- 3a 電動機室
- 4 固定スクロール
- 4a 固定鏡板
- 4b 固定スクロールラップ
- 4c 吐出口
- 5 旋回スクロール
- 5a 旋回鏡板
- 5b 旋回スクロールラップ
- 5c 旋回軸受
- 5d ボス部
- 6 圧縮室
- 7 オルダムリング
- 8 メインフレーム
- 8a 軸受
- 9 シャフト
- 9a 旋回軸
- 10 吐出室
- 11 油溜
- 12 油戻し管
- 13 吐出弁
- 13a 弁押え
- 14 ねじ
- 15 吐出管
- 16 油溜部
- 17 ストレーナ
- 18 油分離板
- 19 ボルト

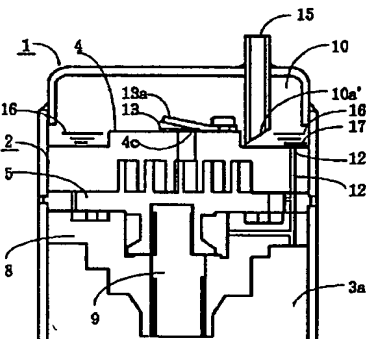
【図2】



【図3】



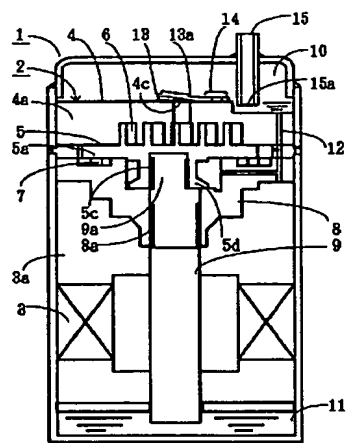
【図4】



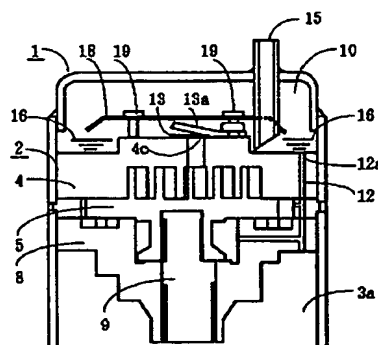
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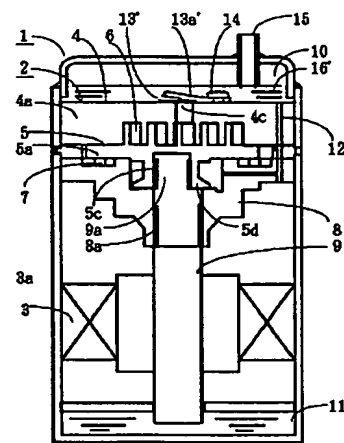
【図 1】



【図 5】



【図 6】



フロントページの続き

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